



## **Impact of aerosols, dust, water vapor and clouds on fair weather PG and implications for the Carnegie curve**

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We studied the impact of anthropogenic aerosols, fine mode natural aerosols, Saharan dust, atmospheric water vapor, cloud fraction, cloud optical depth and cloud top height on the magnitude of fair weather PG at the rural station of Xanthi. Fair weather PG was measured in situ while the other parameters were obtained from the MODIS instrument onboard the Terra and Aqua satellites. All of the above parameteres were found to impact fair weather PG magnitude. Regarding aerosols, the impact was larger for Saharan dust and fine mode natural aerosols whereas regarding clouds the impact was larger for cloud fraction while less than that of aerosols. Water vapour and ice precipitable water were also found to influence fair weather PG. Since aerosols and water are ubiquitous in the atmosphere and exhibit large spatial and temporal variability, we postulate that our understanding of the Carnegie curve might need revision.